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IMPROVED SECURITY APPARATUS, SYSTEM, AND METHOD

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CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

This application is a continuation-in-part of co-pending U.S. patent application Ser. No. 10/636,348 filed on August 7, 2003 entitled "Improved Security Apparatus, System, and Method," which in turn, is a continuation-in-part of co-pending U.S. Patent application Ser. No. 09/943,913, filed on August 31, 2001 entitled "Personal Property Security Device," which claims the benefit of U.S. Provisional Patent Application Ser. No. 60/230,608 filed on September 6, 2000 entitled "Personal Property Security Device." All of these prior applications are herein incorporated by reference.

BACKGROUND OF THE INVENTION

1. The Field of the Invention

The invention relates to a mobile monitoring security device. More specifically, the present invention relates to a mobile monitoring security device that includes a communications interface that is capable of providing audible information regarding the status and condition and location of the monitoring device to a user. The communications

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interface also gives the user the ability to remotely make programming changes to various functions of the security device.

2. The Relevant Art

Many personal, corporate, or government property items are vulnerable to theft or vandalism with no effective economical means of protection. Security systems that monitor the premises of a property are usually expensive and typically ineffective. Such monitoring security systems are also typically immobile and slow to respond to trouble. Once informed of stolen or vandalized property, law enforcement personnel are often too busy to investigate such crimes due to their heavy workloads and the fact that they have very few effective tools for the apprehension of such perpetrators. Thieves and vandals are seldom caught, and the personal property is seldom recovered.

Currently available security systems typically require the owner to be physically present to activate or deactivate the security system or make any changes to the programming of such. The requirement of being physically present has proven to be cumbersome for owners, particularly when the security system is placed at a job location, such as a construction site, that might be located far from the owner of the security system. When a security system is activated, the owner may be required to go to the location, and manually reset the system.

Furthermore, current security systems are designed to notify a designated security company in the event that the security system detects a property disturbance. Notifying a designated security company often proves to be ineffective in that security companies will automatically notify local authorities whenever the security system is activated. However, such automatic notification is often troublesome because if the situation turns out to be a "false alarm," the valuable time of the law enforcement personnel will have been wasted. In such situations, many local authorities will also issue a fine and/or a citation to the property-owner for requiring the local authorities to respond to a false alarm.

Accordingly, there is a need in the art for a monitoring security device that addresses and/or solves one or more of the above-listed problems. Such a device is disclosed herein.

SUMMARY OF THE INVENTION

The apparatus of the present invention has been developed in response to the present state of the art, and in particular, in response to the problems and needs in the art that have not yet been fully solved by currently available security devices. In general, the present invention is a mobile, remotely programmable, trackable, monitoring device that may be used to monitor real property and/or personal property such as vehicles, tools,

equipment, bicycles, trailers, boats, stereos, televisions, machinery, computers, art, and the like.

The monitoring device includes a controller and a transceiver that is in electronic communication with the controller. The transceiver is configured such that it may communicate with a user transceiver. In one embodiment, the transceiver is a cellular telephone whereas the user transceiver is a cellular or landline telephone or computer or other receiving device that is used by the property-owner.

A communications interface is also added to the monitoring device. The communications interface is in electronic communication with both the controller and the transceiver. In one embodiment, the communications interface comprises a voice menu system. The voice menu system allows the monitoring device to produce audible information that may be transmitted to the user transceiver by the device transceiver. It allows phone interface with user.

The monitoring device may additionally comprise one or more sensors. The sensors are designed to detect a change in a condition of the property. The sensors that may be used as part of the monitoring device may include motion sensors, shock sensors, audible/sound sensors, moisture sensors, humidity sensors, fire sensors, temperature sensors, detachment sensors, smoke sensors, carbon monoxide sensors, chemical sensors, video sensors, and/or magnetic sensors. A low-battery sensor may also be added to measure the power supply of the monitoring device.

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The monitoring device is designed such that if one or more of the sensors detect a disturbance to or improper condition of the property, the device transceiver will contact the user transceiver and provide audible information to the user transceiver regarding the status and location of the property as well as the change in the condition that was detected by the sensors. Accordingly, the monitoring device allows the property-owner to become immediately informed of potential disturbances to or problems of his or her property.

In further embodiments, the monitoring device may include a microphone and/or a camera. The microphone and camera are designed such that if activated by the user, microphone and/or camera will gather additional audio and/or visual or other types of information from the area surrounding the monitoring device. This additional audio and visual information may help the user more readily identify a "false alarm."

A tracking transmitter may also be added to the monitoring device. The tracking transmitter is designed to provide information regarding the location of the monitoring device. Specifically, some embodiments may be made in which the tracking transmitter is designed to emit a tracking signal if the property is moved or disturbed. Another embodiment may have a GPS device to determine its location and that information will be transmitted to the user through the phone interface.

The monitoring device may also be configured to include an alarm system, one or more lights, and/or one or more speakers. Preferably, the lights, the alarm system, and the speakers are designed to scare off would-be thieves or vandals.

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Additionally, the monitoring device may further be configured such that it is capable of executing one or more programming commands that are issued by the user transceiver. The programming commands that may be issued to the monitoring device may include: a command to activate or deactivate one or more of the sensors, a command to activate or deactivate the tracking transmitter, a command to activate or deactivate the low-battery sensor, a command to activate or deactivate the alarm system, a command to change the automatic clock, a command to activate or deactivate the lights, a command to activate or deactivate the speakers, a command to activate or deactivate the microphone, a command to activate or deactivate the camera, a command to notify the local authorities of the disturbance, and/or a command to turn the monitoring device on or off or a command to perform various other functions desired by the user.

These and other features and advantages of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

A more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof, which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered to be limiting of its scope, the

invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 is a block diagram illustrating one embodiment of a security system of the present invention;

Figure 2 is a block diagram illustrating one example of a monitoring device of the present invention;

Figure 3 is a block diagram illustrating one example of a communications interface that may be used as part of the monitoring device of the present invention;

Figure 4 is a block diagram illustrating one example of an input device that may be used as part of the monitoring device of the present invention;

Figure 5 is a block diagram illustrating one example of an output device that may be used as part of a monitoring device of the present invention;

Figure 6A is a block diagram of the major electronic components of one embodiment of a monitoring device of the present invention;

Figure 6B is a block diagram of the major electronic components of a second embodiment of a monitoring device of the present invention;

Figure 7 is a flow chart illustrating one embodiment of a method of programming a monitoring device of the present invention;

Figure 8 is a flow chart illustrating one embodiment of a method of using the monitoring device of the present invention;

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Figure 9 is a block diagram of an example of a voice menu structure that may be used in conjunction with a monitoring device of the present invention; and

Figure 10 is a block diagram illustrating one example of a security system in accordance with the present invention in which a monitoring device of the present invention has been attached to property.

DETAILED DESCRIPTION OF THE INVENTION

The embodiments of the present invention will be best understood by reference to the drawings, wherein like parts are designated by like numerals throughout. It will be readily understood that the components of the present invention, as generally described and illustrated in the figures herein, could be arranged and designed in a wide variety of different configurations. Thus, the following more detailed description of the embodiments of the apparatus, system, and method of the present invention, as represented in Figures 1 through 10, is not intended to limit the scope of the invention, as claimed, but is merely representative of presently preferred embodiments of the invention.

Referring to Figure 1, a mobile security system 100 according to the present invention is illustrated. The security system 100 includes one or more mobile monitoring devices 102 that are configured to monitor conditions relating to property (not shown). The monitoring devices 102 may be used to monitor both real property and/or personal

property such as vehicles, equipment, tools, bicycles, trailers, boats, stereos, televisions, and the like. In so doing, the monitoring devices 102 may detect fires, floods, movement, theft, damage, and/or other disturbances or unsafe conditions to the property caused by people, nature, animals, or the like. Additional embodiments may also be made in which the monitoring device 102 is adapted so that it may be activated with a panic button or water sensor. In these latter embodiments, the monitoring device 102 may be attached to a child or other person as used as a mechanism for alerting others when the wearer is disturbed, has fallen into water, and/or is experiencing other dangerous or troubling situations.

The monitoring devices 102 are designed such that they may communicate with one or more user transceivers 104. The user transceiver 104 may comprise telephones, computer terminals, PDA's, televisions, radios, speakers, or the like. In one embodiment, the user transceiver 104 comprises a cellular or landline telephone.

The monitoring devices 102 are constructed to establish communication with the user transceiver 104 via a communications network 106. In one embodiment, the monitoring devices 102 establish communication with the user transceivers 104 upon detecting movement or another type of event that changes a condition of the property. These changes in a condition of the property could be theft, floods, fire, damage, and/or other types of disturbances to the property. The monitoring device 102 may be constructed such that if a change in a condition of the property is detected, the monitoring

device 102 will transmit information regarding the condition of the property and/or the monitoring device 102 to the user transceivers 104.

In the embodiment shown in Figure 1, the communications network 106 comprises a cellular telephone network. However, those of skill in the art will recognize that this depiction is not limiting. Other types of networks and/or systems that are capable of allowing the monitoring device 102 to communicate with the user transceiver 104 may also be used as the network 106.

The user transceiver 104 is further configured to interact with a user 108. In the embodiment shown in Figure 1, the user transceiver 104 interacts with the user 108 using verbal or other audible communication. The verbal communication may include directions to and the location of the property being monitored. The verbal communication may further include an update regarding the status and/or condition of the monitoring device 102 and/or the property being monitored. The user then has the ability to effect commands to the monitoring device to cause it to perform various function as needed.

In addition to location and/or status information, further embodiments may be made in which the monitoring device 102 provides the user 108 with real-time or deferred audio and/or visual information. Such audio and visual information may be gathered by a microphone and/or camera or other information-gathering device that is positioned on the monitoring device 102 or in the vicinity of the monitoring device 102. Such audio or

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visual information may allow the user 108 to view and/or listen to sounds in the area surrounding the property being monitored. Indeed, this audio and visual information may provide the user 108 with the opportunity to view a picture of the thieves and/or listen to the perpetrators' conversations without the perpetrators' being aware of the surveillance.

In one example of operation, a monitoring device 102 may be used to monitor the property associated with a construction site. Upon detecting a disturbance, one or more monitoring devices 102 may initiate communication with one or more user transceivers 104 by way of the communication network 106. A user 108 may then access the user transceiver 104 and be provided with information such as the status of the property as well as the location of and directions to either the property being monitored and/or the construction site. The monitoring devices 102 may also provide audio or video information to the user transceiver 104. With this gathered information, the user may then determine if the situation is a "false alarm" and/or ascertain what (if any) additional steps are necessary to secure the property.

Referring now to Figure 2, a block diagram illustrates one embodiment of a monitoring device 102 that may be used as part of the security system 100 shown in Figure 1. The monitoring device 102 may include a transceiver 200, a controller 202, a memory unit 220, one or more input devices 250, one or more output devices 260, and a communications interface 240. Such elements of the monitoring device 102 are in electronic communication with each other. As illustrated in Figure 2, the various

elements of the monitoring device 102 communicate with each other through a central bus 210. However, other embodiments may also be made in which the various elements of the monitoring device 102 communicate with each other without the use of a central bus 210.

The transceiver 200 may be a cellular telephone or other type of wireless or hardwired device that is capable of communicating with the user transceiver 104. One example of a type of cellular telephone that may be used as the transceiver 200 is a NOKIA model number 5165 cellular telephone. The transceiver 200 is configured such that the communication between the transceiver 200 and the user transceiver 104 may be verbal, audible, tactile, and visual interaction. In further embodiments, the communication between the transceiver 200 and the user transceiver 104 may be conducted over the Internet.

The controller 202 is in electronic communication with the transceiver 200. As used herein, a "controller" is any device that includes a digital processor capable of receiving and processing data or information. In one embodiment, the controller 202 is a microcontroller. However, other embodiments may also be constructed in which the controller includes a computer, a hand-held computer, a personal computer, a server, a mainframe, a supercomputer, and/or combinations thereof.

The controller 202 interacts with the transceiver 200 to provide information regarding the input devices 250, the output devices 260, and/or the communications

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interface 240 to the user transceiver 104. The controller 202 may further be configured to interact with the transceiver 200 to provide or transmit programming commands received from the user transceiver 104 to the input devices 250, the output devices 260, and/or the communications interface 240.

The memory unit 220 is of the type known in the art and is designed such that it may be used to store electronic information which includes, but is not limited to computer program instructions, data, audio data, video data, etc. Examples of the types of devices that may be used for the memory unit 220 include (but are not limited to) RAM, ROM, flash memory devices, hard-drives, CD-ROMs, EPROM, EEPROM, and the like.

The communications interface 240 is designed to facilitate the communication between the monitoring device 102 and a user 108 that is using the user transceiver 104. As seen in Figure 2, the communications interface 240 may comprise a voice menu system 270. The voice menu system 270 is designed such that it is capable of producing audible information that may be transmitted to the user transceiver 104 by the transceiver 200. More specifically, the voice menu system 270 is designed such that information related to the location and/or status of the monitoring device 102 and/or the property being monitored may be transmitted to the user transceiver 104 by the transceiver 200. The voice menu system 270 is also configured to provide the user 108 with a menu of available programming commands and other options that may be executed or performed by the monitoring device 102.

Referring now to Figure 3, a block diagram illustrates the voice menu system 270 in greater detail. The voice menu system 270 includes a voice synthesizer 272. The voice synthesizer 272 is of the type that is known in the art and is designed to produce audible words, sounds, phrases, and/or sentences that are understandable and recognizable by a user 108. Preferably, the voice menu system 270 is configured to communicate with the user 108 via the words, sounds, phrases, and/or sentences produced by the voice synthesizer 272. One example of a voice synthesizer 272 that may be used is a WINDBOND WTS 701. Of course, other types and brands of voice synthesizers may also be used. In yet other embodiments, the voice menu system 270 may be designed to record and/or play a message that may be transmitted to the user 108.

The voice menu system 270 is also designed such that a user 108 may interact with the voice menu system 270. This interaction may occur after the voice menu system 270 has communicated to the user 108 a list of options or selections that are available to the user 108. (A description of the selections and options available to the user 108 will be discussed in greater detail below). The voice menu system 270 is further configured such that after it has given the user 108 a list of options or selections, the voice menu system 270 will recognize and/or receive the selections and responses made by the user 108.

In those embodiments in which the user transceiver 104 comprises a cellular or touch-tone telephone, the voice menu system 270 is constructed such that the user 108

may indicate his or her selection from the menu of options by depressing one or more of the dialing buttons that are located on the telephone. This depression of the telephone button produces one or more DTMF tones that may be detected and/or decoded by a DTMF detector 274 that has been added to the voice menu system 270. Once the DTMF detector 274 has detected the selection made by the user 108, the voice menu system 270 and/or the monitoring device 102 may then execute and/or implement the user's selection. Referring still to Figure 3, the voice menu system 270 may further comprise a voice recognition system 276 in electronic communication with the DTMF detector 274 and the voice synthesizer 272. The voice recognition system 276 is of the type known in the art and is designed such that it is capable of recognizing words, sounds, phrases, and/or sentences spoken or produced by the user 108. An internal microphone 278 may additionally be added to the voice recognition system 276 to amplify the sounds produced by the user 108. In some embodiments, the voice tag capabilities of the NOKIA cellular telephone may be used as the voice recognition system 276. However, further embodiments may have other systems and/or devices used as the voice recognition system 276.

The voice recognition system 276 is further constructed such that the user 108 may interact with the voice menu system 270 via the voice recognition system 276. Specifically, the voice recognition system 276 is designed such that rather than depressing the buttons on the telephone, the user 108 may indicate his or her selection from the menu

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of choices by simply speaking one or more words into the user transceiver 104. These words are then transmitted to the voice menu system 270 and recognized by the voice recognition system 276. Once the user's choice has been recognized, the voice menu system 270 and/or the monitoring device 102 may then execute and/or implement the user's selection.

Figure 4 is a block diagram that illustrates the one or more input devices 250 of Figure 2 in greater detail. The input devices 250 are in electronic communication with the controller 202 and may also be in communication with other components such as the output devices 260, the voice module 270, etc. The input devices 250 are designed such that they may gather information regarding the status of the monitoring device 102 and/or the status or condition of the property being monitored. Such information may then be transmitted to the user transceiver 104 via the transceiver 200.

As illustrated in Figure 4, the input devices 250 may include a low-battery sensor 251. The low-battery sensor 251 provides information regarding the power supply of the monitoring device 102 to a user 108. In one embodiment, the battery sensor 251 interacts with the controller 202 when the power supply of the monitoring device 102 has reached a pre-determined low power threshold value. In such situations, the controller 202 interacts with the transceiver 200 to provide a command to contact a user transceiver 104. The controller 202 interacts with the voice menu system 270 such that when a contact has been established with the user transceiver 104, the voice menu system 270 provides

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audible information to the user transceiver 104 regarding the status of the power supply. Thus, by providing this audible information regarding the status of the power supply, a user 108 will know when it is necessary to recharge or replace the battery of the monitoring device 102.

The input devices 250 may further include one or more sensors 254. The sensors 254 are designed to measure a change in a condition of the monitoring device 102 and/or the property being monitored. The sensors 254 may also be configured to measure a change in a condition proximate to the property and/or the monitoring device 102. The sensors 254 may include one or more of the following: motion sensors 254a, shock sensors 254b, audible/sound sensors 254c, humidity sensors 254d, fire sensors 254e, temperature sensors 254f, detachment sensors 254g, smoke sensors 254h, video sensors 254i, magnetic sensors 254j, freezing sensors 254k, overheating sensors 254l, weight sensors 254m, chemical sensors 254n, radiation sensors 254o, glass break sensors 254p, intrusion sensors 254q, carbon monoxide sensors 254r, poison sensors 254s, vibration sensors 254t, light sensors 254u, and/or radiation sensors 254v. Of course, other types of devices and/or sensors may also be used.

As with the low-battery sensor 251, if the sensors 254 detect a change in a condition of the monitoring device 102 and/or the property being monitored, the sensors 254 will interact with the controller 202. (For example, if the motion sensor 254a is activated by moving an object proximate to the monitoring device 102 or by moving the

actual monitoring device 102, the sensors 254 will interact with the controller 202.) In turn, the controller 202 will interact with the transceiver 200 to provide a command to contact a user transceiver 104. The controller 202 may also provide a command to the voice menu system 270 such that when a contact has been established with the user transceiver 104, the voice menu system 270 provides audible information regarding the status of the monitoring device 102, the status of the property being monitored, and/or the change in the condition that was detected by the sensors 254. Thus, by providing this audible information to the user 108, the user 108 may determine whether further action is necessary to secure the property.

Referring still to Figure 4, the input devices 250 may additionally comprise a microphone 252 and/or a camera 256. The microphone 252 and the camera 256 are designed such that they may be activated after the monitoring device 102 has detected a disturbance. Once activated, the microphone 252 and the camera 256 collect real-time or deferred audio or visual information that may be transmitted to the user 108. Such audio or visual information may allow the user 108 to view and/or listen to sounds in the area surrounding the property being monitored.

Another input device that may be used is a GPS device 259. The GPS device 259 provides the geographical coordinates of the monitoring device 102 to the controller 202 which may communicate them to the user 108 and/or the user transceiver 104.

Figure 5 is a block diagram that illustrates the one or more output devices 260 of Figure 2 in greater detail. As outlined above, the output devices 260 are in electronic communication with the controller 202, and may also be in communication with other components such as the voice menu system 270, the input devices 250, etc. One such example of an output device is a display module 263 (such as a computer screen, LCD screen, etc.) that may be added to the exterior of the monitoring device 102. The display module 263 may be used to present or display information about the monitoring device 102.

The output devices may also include a tracking transmitter 268. The tracking transmitter 268 is designed to provide information regarding the location of the monitoring device 102 to a user 108. In one embodiment, the tracking transmitter 268 is an RF transmitter 268a that transmits radio frequency waves in order to enable a user 108 to locate the monitoring device 102.

In addition to emitting a signal, the transmitter 268 may further be constructed such that if the property is moved or stolen, the transmitter 268 will interact with the controller 202. Such interaction with the controller 202 causes the controller 202 to issue a programming command that will cause the transceiver 200 to initiate a phone call to the user transceiver 104. Additionally, the controller 202 also interacts with the voice menu system 270 such that once the user transceiver 104 has been contacted, the voice menu system 270 will provide audible information to the user 108 regarding the status and

location of the monitoring device 102 and/or the property being monitored by the monitoring device 102. Thus, the user 108 will be quickly informed of the fact that his or her property is being moved and/or stolen.

The output devices 260 may further include one or more lights 264. The lights are positioned along the exterior of the monitoring device 102 and are constructed such that they may illuminate the area proximate to the monitoring device 102. In the embodiment shown in Figure 5, the lights 264 comprise strobe lights. The lights 264 are designed such that they may be activated after the monitoring device 102 has detected a disturbance. Once activated, the lights 264 flash to deter a would-be thief or vandal from stealing and/or damaging the property or the monitoring device 102.

The output devices 260 may additionally comprise an alarm system 266. The alarm system 266 is positioned proximate to the lights 264. A siren 266a may also be added to the alarm system 266. As with the lights 264, the alarm system 266 is designed such that it may be activated after the monitoring device 102 has detected a disturbance. Once activated, the alarm system 266 emits noise to deter a would-be thief or vandal from stealing and/or damaging the property or the monitoring device 102.

One or more speakers 262 may also be included as output devices 260. In some embodiments, the speakers 262 will interact with and/or form part of the alarm system 266. In other embodiments, the speakers 262 may be used to interact with the transceiver 200 and the controller 202. In these latter embodiments, the speakers 262 are configured

such that they may transmit the voice of the user 108 into the area surrounding the monitoring device 101. Thus, once the user 108 is aware of a potential disturbance, the user 108 can use his or her voice to scare away the perpetrators and/or inform the perpetrators that they will be duly prosecuted for their criminal actions.

Referring still to Figure 5, the output devices 260 may additionally comprise one or more attachment receptors 267. The attachment receptors 267 are designed such that the monitoring device 102 may communicate with one or more external security devices 269 through the receptors 267. Examples of the types of external devices 269 that may be used with the receptor 267 include on-site alarm systems, building alarm systems, recording devices, external light sources, external sensors, other external security devices, and the like. By attaching these external security devices 269 to the receptors 267, the monitoring device 102 may interact with and/or become incorporated into a larger security network.

One or more additional switches 261 may also be added to the output devices 260. The switches 261 may include a switch that turns the monitoring device 102 on or off, a switch that allows a user 108 to change a condition of the monitoring, and/or a switch that allows a user 108 to issue programming commands to the monitoring device 102. Of course, further embodiments may also be made in which other types of switches and/or devices comprise the switches 261.

Figure 6A is a block diagram of the major electronic components of one embodiment of the monitoring device 102 shown in Figure 2. Many of the components and elements of the monitoring device 102 are described above in conjunction with Figures 1-5. However, as seen in Figure 6A, the monitoring device may further comprise a real-time clock 282. The real-time clock 282 is of the type known in the art and is configured such that it is capable of measuring and/or keeping time. Additional embodiments may include a real-time clock 282 with a calendar feature that measures the date. The clock 282 is constructed such that it is in electronic communication with the controller 202. The clock may be programmed to automatically activate or deactivate the unit 102 at various times of the day and/or month as necessary without further input from the user 108.

The monitoring device 102 may include a primary battery 283 that powers the controller 202, the transceiver 200, the sensors 254, and/or other components of the monitoring device 102 that require power. The primary battery 283 also interacts with the battery sensor 251. The battery sensor 251 monitors the power levels within the battery and is constructed such that it will interact with the controller 202 if the power supply of the primary battery 283 reaches a pre-determined low power threshold value.

In one embodiment, the monitoring device 102 may be constructed in which the primary battery 283 is positioned at or near the exterior of the monitoring device 102. Such positioning of the primary battery 283 allows a user 108 to easily access the battery

283 in the event that the battery 283 needs to be recharged and/or replaced. Of course, other embodiments may also be constructed in which the primary battery 283 is positioned on the interior of the monitoring device102.

In the embodiment shown in Figure 6A, the monitoring device 102 has been further constructed such that the tracking transmitter 268 does not receive or draw power from the primary battery 283. Rather, the tracking transmitter 268 receives power from a secondary battery 283a that is in electronic communication with the tracking transmitter 268. The secondary battery 283a has sufficient power such that if it is activated, the tracking transmitter 268 may issue a locating signal for long periods of time. For example, in some embodiments, the secondary battery 283a is designed to have sufficient power so that the tracking transmitter 268 may emit a tracking signal for one year or more.

Unlike the primary battery 283, the secondary battery 283a is typically positioned on the interior of the monitoring device 102. The secondary battery 283a is also designed to provide a "back-up" power supply to the monitoring device 102 if the primary battery 283 is removed or is exhausted. Further embodiments may be designed such that if the primary battery 283 is removed (such as by unauthorized tampering with the monitoring device 102), the monitoring device 102 will immediately activate itself using power obtained from the secondary battery 283a. Unless programmed otherwise, the activated

monitoring device 102 will then contact the user transceiver 104 and inform the user 108 of the removal of the primary battery 283 and/or the potential disturbance to the property.

Additionally, the monitoring device 102 may further comprise a memory chip 284 that is in electronic communication with the controller 202. In one embodiment, the memory chip is a typical EEROM memory storage chip. In some embodiments, the memory 284 will form all or part of the memory unit 220. This memory 284 is configured such that it will not loose its content when power to the monitoring device 102 is lost or shut down.

A sensor information storage unit 286 may also be added to the monitoring device 102. The storage unit 286 may comprise any type of device that is known in the art that is capable of storing information. Specifically, the storage unit 286 is designed to store information gathered by the sensors 254, the microphone 252, the camera 256, and/or other input devices 250 so that this information may be available in the future for reference and use. This type of stored information may be particularly helpful in identifying and/or prosecuting the perpetrators in a legal proceeding.

Although the embodiment illustrated in Figure 6A includes a storage unit 286 that stores information gathered by the sensors 254, the microphone 252, the camera 256, and/or other input devices 250, embodiments may also be constructed in which the information gathered by these devices is transmitted to and stored by an external storage unit. Examples of the type of systems or devices that may be used as this external storage

unit include computers, hard-drives, CD-ROMs, floppy disks, videotapes, audiotapes, and/or other types of data storage mechanisms.

An interrupt controller (or EPLD) 294 may also be added to the monitoring device 102. The interrupt controller 294 is a low power circuit that is in electronic communication with the sensors 254. An EPLD (electronic low power device) is a device that allows the entire unit to be basically shut down to save battery and yet the sensors can still be active. The EPLD is basically a battery saving device. It is a device that uses extremely little power and remains in contact with the designated sensors. If the sensors detect a problem the EPLD will power up the main controller 202 which will initiate the call to the user.

Other embodiments may also be made in which the interrupt controller 294 is also in electronic communication with the low battery sensor 251. The interrupt controller 294 is configured such that if one or more of the sensors 254 detects a disturbance or change in a condition of the property or the monitoring device 102, the sensors 254 will signal the interrupt controller 294. Once signaled, the interrupt controller 294 will then turn on and/or activate the controller 202.

In the embodiment shown in Figure 6A, the transceiver 200 comprises a cellular telephone that is configured such that a user transceiver 104 may initiate contact with the monitoring device 102 by making a telephone call to the cellular telephone transceiver 200. The monitoring device 102 is configured such that if such a telephone call is made,

the interrupt controller 294 interacts with the transceiver 200 and detects the incoming call from the user transceiver 104. Once this incoming call has been detected, the interrupt controller 294 will then turn on and/or activate the controller 202 so that the monitoring device 102 will properly interact with the user transceiver 104.

Referring still to Figure 6A, an internal RF sensor 296 may further be added to the monitoring device 102. The internal RF sensor 296 is in electronic communication with the controller 202 and is positioned proximate to the transceiver antenna 297. The RF sensor 296 is designed to receive signals from the antenna 297.

Accordingly, in the embodiment shown in Figure 6A in which the transceiver 200 comprises a cellular telephone, the RF sensor 296 is positioned proximate to the cellular telephone antenna 297. Thus, when a telephone call is either made or received by the cellular telephone transceiver 200, the RF sensor 296 receives signals from the antenna 297. These signals are transmitted to a call progress analyzer 299. The analyzer 299 communicates with the controller 202 and provide the monitoring device 102 with information regarding the progress of the telephone call. Specifically, the RF sensor 296 allows the monitoring device 102 to receive information regarding whether an incoming telephone call has been answered, whether an incoming telephone call has ended, whether an outgoing call has been answered by a receiving party, whether an outgoing call has been ended by a receiving party, as well as other valuable information.

The monitoring device 102 shown in Figure 6A may additionally comprise a key press interface 290. The key press interface 290 is an electrical interface that is in electronic communication with the controller 202. The key press interface 290 is designed to interface with those embodiments in which the transceiver 200 comprises a cellular telephone. In these embodiments, the key press interface 290 allows the monitoring device 102 to make outgoing phone calls. More specifically, the key press interface 290 allows the monitoring device 102 to make outgoing phone calls by interfacing with and/or pressing the buttons on the cellular telephone. Accordingly, in the event that the sensors 254 detect a disturbance to the property or monitoring device 102, the monitoring device 102 will make a phone call (to the user transceiver 104 and/or to another pre-programmed telephone number) by having the key press interface 290 dial the appropriate telephone number by interfacing with and/or pressing the buttons on the cellular telephone.

Figure 6B is a block diagram of the major electronic components of a second embodiment of a monitoring device 102 according to the present invention. Many of the features and elements of the device 102 shown in Figure 6B are similar to that which is shown in Figure 6A. However, unlike the embodiment shown in Figure 6A, the embodiment of Figure 6B does not include a key press interface 290. Rather, the embodiment shown in Figure 6B replaces the key press interface 290 with a sound generator 291.

The sound generator 291 is in electronic communication with the controller 202 and is configured such that it is capable of producing sounds or noises. In some embodiments, the sounds produced by the sound generator 291 may be audible tones whereas in other embodiments the sounds produced by the generator 291 may be words or phrases. The sound generator 291 is further designed to interface with the transceiver 200. In those embodiments in which the transceiver 200 comprises a cellular telephone, the sound generator 291 is designed to interface with telephone through the phone's headset connections 200a.

Such interfacing between the generator 291 and the transceiver 200 gives the monitoring device 102 shown in Figure 6B the ability to make outgoing phone calls to any one of several pre-programmed telephone numbers that are stored within the transceiver 200. Generally, these pre-programmed telephone numbers will be the telephone numbers that correspond to the user transceiver 104, the user's residence, local law enforcement, or any other telephone number designed by the user. Accordingly, in the event that that the sensors 254 detect a disturbance to the property or monitoring device 102, the controller 202 will cause the sound generator 291 to produce a sound that is transferred to the transceiver 200 via the headset connections 200a. These produced sounds are then recognized by the voice tag system 200b as a command to dial one or more of the pre-programmed telephone numbers that are stored within the transceiver 200.

The voice tag 200b is a component and program presently contained in many cellular phones today that allow the user to program his phone to recognize his or her voice giving the phone a command to initiate a call to a specific phone number. The user 108simply pressed a single button on the phone and says the name of the person s/he wishes the phone to call. This feature is called a "voice tag". The voice tag 200b may be utilizing this feature in the monitoring device 102 to recognize a special electronic signal given by the sound generator in the event of a sensor detecting a need to alert the user 108. Thus, upon receiving the sound produced by the sound generator 291, the transceiver 200 will immediately dial the designated phone number so that the monitoring device may alert the appropriate person(s) of the property disturbance.

Figure 7 is a flow chart illustrating a method 300 that may be used to program one or more of the monitoring devices 102 of the present invention. As shown in Figure 7, the method 300 begins by contacting 302 the transceiver 200. The transceiver 200 is an element or component of the monitoring device 102. Preferably, the transceiver 200 is contacted by a user 108 that is using a user 108 transceiver 104.

Once the monitoring device 102 has been contacted by the user transceiver 104, the method 300 may include a step of requesting 304 that the user 108 enter a password or other access code. The purpose of this password is to ensure that only authorized persons will be able to program and/or receive information from the monitoring device 102. Additionally, if multiple monitoring devices 102 are being used as part of a larger

security system (such as the security system 100 shown in Figure 1), the password enables a user to program and/or make changes to a specific monitoring device 102 without affecting the other monitoring devices 102 within the system.

The monitoring device 102 is designed such that it may process and recognize the password entered by the user 108. If the password is correctly entered, the method 300 proceeds to the communication step 306. However, if the password entered is incorrect, the method 300 returns to requesting step 304 such that the user 108 is asked again to enter a correct password or access code.

Once the monitoring device 300 determines that a correct password has been entered, the method 300 proceeds to the communication step 306. In this step, the monitoring device 102 determines whether a proper communication link has been established between the user transceiver 104 and the transceiver 200. Once a proper communications link has been established, the method proceeds to the providing information step 308.

In the provide information step 308, the user 108 interacts with the communications interface 240 of the monitoring device 102. Preferably, this interaction occurs by having the user 108 use and/or interact with the voice menu system 270. As part of this step, the monitoring device 102 provides information to the user transceiver 104 regarding the status of the monitoring device 102 and/or the status of the property being monitored by the monitoring device 102. As discussed above, this information may

be audible information related to the power supply of the battery, audible information regarding the location and/or status of the monitoring device 102 and/or the property being monitored, and/or audible information related to a change in a condition of the property and/or the monitoring device 102 that has been detected by one or more of the sensors 254. In some embodiments, the providing information step 308 may include providing instructions regarding how the user 108 may issue programming commands to the monitoring device 102.

Once the monitoring device 102 has finished providing information to the user 108, the method 300 then proceeds to the programming command step 310. In this step, the user 108 is provided with a menu that allows the user 108 to issue a programming command to the monitoring device 102. (A specific example of a menu that allows the user 108 to issue programming commands to the monitoring device 102 is shown in Figure 9.) The programming commands available to the user 108 may include: a command to activate or deactivate one or more of the sensors 254, a command to activate or deactivate the low-battery sensor 251, a command to activate or deactivate the tracking device 268, a command to activate or deactivate the microphone 252, a command to activate or deactivate the camera 256, a command to activate or deactivate the alarm system 266, a command to activate or deactivate the lights 264, a command to activate or deactivate the one or more of the external devices 269, a command that allows the user 108 to speak to the perpetrators via the speakers 262, a command to turn the monitoring

device 102 on or off, a command to send the monitoring device into an inactive or "sleep" mode , a command to activate the monitoring, and/or a command to notify law enforcement of a disturbance to the property.

Further embodiments may be constructed in which additional programming commands are also available to the user 108. For example, embodiments may be made in which the user 108 may issue a programming command that will cause the monitoring device 102 to automatically turn on and off at selected times. (The real-time clock 282 is used to measure the time and trigger this function). This programming may be conducted locally, by hand, or remotely. Thus in this embodiment, the user 108 may program the monitoring device 102 to turn itself off ("sleep mode") automatically during working hours and automatically back on ("active mode") during night and weekend hours. Of course, if the monitoring device 102 is in sleep mode, one or more of the sensors 254, such as the magnetic sensors 254j, detachment sensors 254g, and/or shock sensors 254b may still be programmed to recognize any attempt to tamper, remove, and/or destroy the monitoring device 102. If one or more of these sensors 254g, 254b, and/or 254j detects such tampering, the monitoring device 102 will immediately return to active mode and will initiate a call to the user 108 to alert the owner of the situation.

Referring still to Figure 7, if the user 108 issues a programming command to the monitoring device 102, the monitoring device 102 will detect this command and proceed

to the execute step 312. However, if no programming command is issued by the user 108, the method 300 will skip to the disconnect step 316.

In the execute step 312, the monitoring device 102 executes the programming command by performing the task requested by the user 108. In one embodiment, the programming command is sent or communicated to the controller 202, which in turn, issues a command that causes the monitoring device 102 to execute the desired command. However in other embodiments, the programming command may be executed directly by the transceiver 200.

Once the programming commands have been executed 312, the method 300 proceeds to the provide confirmation step 314. In this step, the monitoring device 102 provides confirmation to the user 108 that the issued programming command has been duly executed. In one embodiment, this may be accomplished by having the voice menu system 270 produce audible words that tell the user 108 that the command has been executed. In other embodiments, a written confirmation is sent to the user transceiver 104 in the form of an email, a text message, or some other method. By providing this confirmation to the user 108, the present method 300 ensures that the user 108 is aware of the changes that have been made as a result of the programming command.

After a confirmation has been sent to the user 108, the method 300 proceeds to the additional programming command step 315. In this step, the monitoring device 102 ascertains whether the user 108 would like to issue another programming command to the

monitoring device 102. If the user 108 indicates that another programming command is desired, the method 300 will return to the programming command step 310 and the above-recited steps (beginning with the programming step 310) are repeated. However, if the user 108 indicates that no additional programming commands are desired, the method 300 skips directly to the disconnect step 316.

During the disconnect step 316, the monitoring device 102 ascertains whether the user 108 desires to end and/or disconnect the communication between the transceiver 200 and the user transceiver 104. If the user 108 decides to disconnect, the method 300 ends as indicated in Figure 7. However, if the user 108 does not choose to disconnect, the method 300 returns to the provide information 308 step and the aforementioned sequence (beginning at the provide information step 308) is repeated.

Referring now to Figure 8, a flow chart illustrates one embodiment of a method 400 for using the monitoring device 102 to improve the security of property. The method 400 begins with a monitoring step 402. In this step, the monitoring device 102 monitors a condition of property using one or more monitoring devices 102 according to the present invention.

The method 400 proceeds to the detect a disturbance step 404. In this step, the monitoring device 102 detects whether a disturbance or similar event has occurred that will negatively affect the property. As described above, such detection may be

accomplished via the one or more sensors 254. However, if no disturbance is detected, the method loops back to the monitor step 402.

If a disturbance or similar event has occurred, the method 400 proceeds to the activation step 406. In this step, the tracking transmitter 268 is activated. Once activated, the transmitter 268 emits a signal that allows a user 108 to determine the location of the property and/or the monitoring device 102.

In response to activation 406 of the tracking transmitter 268, the method 400 continues by contacting 408 the user transceiver 104 by way of the transceiver 200. In one embodiment, contacting 408 the user transceiver involves automatically dialing a preprogrammed list of telephone numbers stored in the memory 220. In another embodiment, the contacting step 408 involves having the voice or sound generator give electrical, audible, or mechanical commands to the transceiver 200 which is programmed to recognize these commands and initiate the call for help to one or more preprogrammed phone numbers stored in the memory 220.

Once the telephone number has been dialed, the method 400 then determines 410 whether a communications link has been established between the user transceiver 104 and the transceiver 200. If no communication link has been established by dialing the first preprogrammed telephone number, the method 400 returns to the contact step 408 and the monitoring device 102 tries again to contact the user transceiver 104 by dialing the next available preprogrammed telephone number stored in the memory 220. This process is

repeated until the monitoring device 102 verifies that a proper communication link has been established between the transceiver 200 and the user transceiver 104.

Once a communication link has been established between the user transceiver 104 and the transceiver 200, some embodiments may require the user 108 to enter a password (as discussed above in conjunction with Figure 7). However, once this password is verified or if no such password is required, the method 400 proceeds to the provide information step 412. In this step, the monitoring device 102 provides information to the user transceiver 104. This information may be audible information that is provided by the voice menu system 270. The audible information may relate to the status or location of the monitoring device 102 and/or the property being monitored. Additionally, the monitoring device 102 may provide information to the user transceiver 104 regarding a change in a condition of the property or the monitoring device 102 that has been detected by one or more of the sensors 254. Further embodiments may also be made in which the provide information step 412 involves transmitting audio and/or video information that has been gathered by the microphone 252 and/or the camera 256 and/or other device. This information gathered by the microphone and/or camera and/or other device may also be stored within the security device for future reference or this information may be transmitted to and stored within some other device and location such as an external recording device, computer data bank etc.

Once the information has been provided to the user 108, the method 400 then proceeds to the review information step 414. In this step, the monitoring device 102 determines whether the user 108 would like to review and/or repeat the information provided during the provide information step 412. If the user 108 chooses to review the information, the method 400 returns to the provide information step 412. However, if the user 108 does not request to review the information, the method 400 proceeds to the programming command step 416.

In the programming command step 416, the user 108 is provided with a menu that allows the user 108 to issue a programming command to the monitoring device 102. (A specific example of a menu that allows the user 108 to issue programming commands to the monitoring device 102 is shown in Figure 9.) The programming commands available to the user 108 may include: a command to activate or deactivate one or more of the sensors 254, a command to activate or deactivate the low-battery sensor 251, a command to activate or deactivate the tracking device 268, a command to activate or deactivate the microphone 252, a command to activate or deactivate the camera 256, a command to activate or deactivate the alarm system 266, a command to activate or deactivate the lights 264, a command that allows the user 108 to speak to the perpetrators via the speakers 262, a command to reset the monitoring device 102 (in case the user 108 determines that there has been a "false alarm"), a command that will turn the monitoring device 102 on or off, and/or a command to notify the local authorities of the disturbance.

If no programming command is issued during the programming step 416, the method 400 proceeds to the disconnect step 422. However, if a command is issued by the user 108, the method 400 proceeds to the execute command step 418. In the execute step 418, the monitoring device 102 executes the programming command by performing the task requested by the user 108. In one embodiment, the programming command is sent to the controller 202, which in turn, causes the monitoring device 102 to perform the desired command. In other embodiments, the programming command may be executed by the transceiver 200.

Once the programming commands have been executed 418, the method 400 may proceed to a provide confirmation step 420. In this step, the monitoring device 102 provides a confirmation to the user 108 that the issued programming command has been duly executed. As outlined above, this confirmation may be in the form of audible words produced by the voice menu system 270 or a written text message or email that is sent to the user transceiver104.

After a confirmation has been sent to the user 108, the method 400 may proceed to an additional programming command step 419. In this step, the monitoring device 102 ascertains whether the user 108 would like to issue another programming command to the monitoring device 102. If the user 108 indicates that another programming command is desired, the method 400 returns to the programming command step 416 and the above-recited steps (beginning with the programming command step 416) is repeated.

However, if no additional programming commands are desired, the method 400 proceeds to the disconnect step 422.

During the disconnect step 422, the monitoring device 102 ascertains whether the user 108 desires to end and/or disconnect the communication between the transceiver 200 and the user transceiver 104. If the user 108 decides to end the communication, the method 400 ends as indicated in Figure 8. However, if the user 108 does not choose to disconnect, the method 400 returns to the review information step 414 and the aforementioned sequence (beginning with the review information step 414) is repeated.

Figure 9 is a flow chart that illustrates one example of a programming menu 600 that may be used to allow a user 108 to issue programming commands to the monitoring device 102. Of course, it should be noted that the programming menu 600 shown in Figure 9 is shown for exemplary purposes only and should not be considered as being limiting. In fact, other types of menus or methods that allow a user 108 to issue programming commands to the monitoring device 102 fall within the scope of the present invention.

As noted above, the programming method shown in Figure 9 may be used either (1) as part of the programming command step 310 of programming method 300 shown in Figure 7 or (2) as part of the programming step 416 of the security method 400 shown in Figure 8. The menu 600 is further designed for use in those embodiments of the present invention in which the user transceiver 104 comprises a cellular or landline telephone.

Accordingly, the menu 600 is designed such that the user 108 will indicate his or selections from the menu 600 by simply pushing the telephone buttons located on the user transceiver 104. However, other embodiments may also be made in which the menu 600 is configured such that user 108 may indicate his or her selections by simply giving verbal instructions to the monitoring device 102.

The programming method 600 includes a main menu 602. When the user 108 first begins the menu 600, the user 108 will access the main menu 602. The main menu 602 prompts the user 108 to select from one or more available submenus by pressing the appropriate telephone button located on the user transceiver 104. While in the main menu 602, if the user 108 pushes the "#" button on the user transceiver 104, the user 108 will disconnect from the system and end the communication between the user transceiver 104 and the monitoring device.

The specific submenus that form part of the programming menu 600 will now be discussed in greater detail. When the user 108 is accessing the main menu 602, if the user 108 presses the "1" button on the user transceiver 104, the user 108 will access the enable menu 604. The enable menu 604 gives the user 108 the ability to activate or deactivate the monitoring device 102. Specifically, the enable menu 604 will prompt the user 108 to press "1" if he or she would like to activate the monitoring device 102. The enable menu 604 prompts the user 108 to press "2" if he or she desires to deactivate the monitoring device 102. Additionally, the enable menu 604 prompts the user 108 to press

"3" if he or she desires to make the monitoring device enter "spy mode." In the "spy mode," the monitoring device 102 activates the microphone 252 and/or the camera 256. Such activation of the microphone 252 and/or the camera 256 allows the user 108 to obtain audio and/or visual information from the area surrounding the monitoring device 102 so that the user 108 can more readily determine what (if any) additional steps are necessary to secure the property.

The enable menu 604 may also give the user 108 the opportunity to return to the main menu 602 or to disconnect from the system. Specifically, the enable menu 604 may prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

When the user 108 is accessing the main menu 602, if the user 108 presses the "2" button on the user transceiver 104, the user 108 will access the set clock menu 606. The set clock menu 606 prompts the user 108 to press "1" if he or she desires to set the time on the real-time clock 282. The clock menu 606 also prompts the user 108 to press "2" if he or she desires to program the monitoring device 102 so that the monitoring device 102 will automatically turn on or off at specified times of the day. The set clock menu 606 prompts the user 108 to press "3" if he or she desires to set the date using the calendar feature of the real-time clock 282. Finally, the clock menu 606 may also prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

When the user 108 is accessing the main menu 602, if the user 108 presses the "3" button on the user transceiver 104, the user 108 will access the sensor menu 608. The sensor menu 608 allows a user to selectively activate or deactivate one or more of the sensors 254. For example, the sensor menu 608 prompts the user 108 to press: "1" if he or she desires to select the vibration sensor 254t, "2" if he or she desires to select the motion sensor 254a, "3" if he or she desires to select the smoke sensor 254h, "4" if he or she desires to select the temperature sensor 254f, or "5, 6, 7, 8, or 9" if he or she desires to select one of the other sensors 254 that have been added to the monitoring device 102. Once the specified sensor 254 has been selected, the sensor menu 608 prompts the user 108 to press "1" if he or she desires to activate the selected sensor or to press "2" if he or she desires to deactivate the selected sensor. Finally, the sensor menu 608 may also prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

When the user 108 is accessing the main menu 602, if the user 108 presses the "4" button on the user transceiver 104, the user 108 will access the program telephone numbers menu 610. The program numbers menu 610 allows the user 108 to set the telephone numbers that the monitoring device 102 will dial if the monitoring device 102 detects a disturbance to the property. Specifically, the program numbers menu 610 prompts the user 108 to press "1" if he or she desires to program the first telephone number that the monitoring device 102 will dial in the event of a property disturbance.

Similarly, the program numbers menu 610 prompts the user 108 to press "2" and "3" to respectively program the second and third telephone numbers that will be dialed in the event that there is no answer when the first programmed telephone number is dialed during a property disturbance.

As with the other submenus described early, the program numbers menu 610 may also give the user 108 the opportunity to return to the main menu 602 or to disconnect from the system. Specifically, the enable menu 604 may prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

When the user 108 is accessing the main menu 602, if the user 108 presses the "5" button on the user transceiver 104, the user 108 will access the battery menu 612. In this battery menu 612, the user 108 can press "1" to hear information related to the amount of power that is in the battery 283. By receiving this status information, the user 108 will know when it is necessary to recharge the battery 283. The battery menu 612 may also have a feature that will prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

Finally, when the user 108 is accessing the main menu 602, if the user 108 presses the "6" button on the user transceiver 104, the user 108 will access the other features menu 614. The other features menu 614 allows a user to activate or deactivate the other features and elements that are found on the monitoring device 102. For example, the

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other features menu 614 will prompt the user to press: "1" if he or she would like to select the lights 264, "2" if he or she would like to select the RF transmitter 268a, "3" if he or she would like to select the GPS device 259, "4" if he or she would like to select the speakers 262, "5" if he or she would like to select the camera 256, or (depending on the specific embodiment) "6", "7", "8" or "9" to select such additional features such as the microphone 252, the alarm 266, the receptors 267, etc. Once the specified device or element has been selected, the other features menu 614 prompts the user 108 to press "1" to activate this device or "2" to deactivate the device. The other features menu 614 may also prompt the user 108 to press "*" if he or she desires to return to the main menu 602 or to press "#" if he or she desires to disconnect from the system.

Referring now to Figure 10, a block diagram illustrates one example of a security system 500 that incorporates one or more monitoring devices 102 according to the present invention. The depicted security system 500 is one example of a system useful for conducting the monitoring method 400 described in Figure 8. Additionally, the monitoring device 102 shown in figure 9 may also be programmed using the method 300 described above in conjunction with Figure 7.

As depicted, the security system 500 includes the monitoring device 102, a communications tower 514, and a user transceiver 104. The monitoring devices 102 have been attached to property 502, 503. As seen in Figure 9, the monitoring device 102 that is attached to the first property 502 is positioned on the exterior of the property 502.

Conversely, the monitoring device 102 that has been attached to the second property 503 has been positioned on the interior of the property 503. Of course other embodiments may also be made such that when attached to the property 502, 503, the monitoring device 102 is inconspicuous.

The property 502, 503 that is illustrated in Figure 10 may comprise personal property such as vehicles, equipment, tools, bicycles, trailers, boats, stereos, televisions, and the like. Other embodiments may also be constructed in which the property comprises real property. In these embodiments, the monitoring device 102 is preferably configured such that they are dispersed at various locations on the real property. A construction site is but one example of a location that may be monitored using a monitoring device 102 according to the present invention.

In summary, the present invention comprises a mobile, programmable monitoring device that includes a communications interface that provides audible information that may be transmitted to the user 108. As such, many of the problems and limitations associated with previously known security systems have been effectively eliminated.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing